

Amendments to the Claims:

- 1 1 (Original). A method comprising the steps of:
- 2 a) determining that a datagram arriving at an interface between a network
- 3 and an edge resource is the initial datagram in a sequence of datagrams associated
- 4 in a common session as to which a new connection is requested;
- 5 b) providing a table of values indicating the probability that a new connection
- 6 will be allowed for each of a plurality of pipes;
- 7 c) determining the pipe membership of a determined initial datagram by
- 8 testing Quality of Service bits in said datagram and selecting from the provided table
- 9 a probability value corresponding to the determined pipe membership of the
- 10 determined initial datagram; and
- 11 d) determining from the selected probability value whether establishment of
- 12 a new connection will be allowed for the associated session and selectively
- 13 acknowledging the determined initial datagram and allowing a new connection for
- 14 the associated session based upon the determination of whether a new connection
- 15 will be allowed.
- 1 2 (Original). The method according to Claim 1, wherein the step of determining
- 2 allowability of a session and selectively acknowledging an initial datagram further
- 3 includes the steps of:
- 4 e) providing a random number;
- 5 f) performing a comparison of a current value of the random number with the
- 6 new connection allowance probability value selected from the table of values;
- 7 g) disregarding the initial datagram if the current state of the random number
- 8 generator is greater than the new connection allowance probability value; and
- 9 h) sending the initial datagram to an edge device or to an attached session
- 10 handling device wherein an acknowledgment signal can be computed and
- 11 transmitted if the current state of said random number generator is less than or
- 12 equal to the new connection allowance probability value.

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1 3 (Currently Amended). The method according to Claim 2, wherein the random
2 number and the new connection allowance probability value are both fractions
3 between 0 and 1.0, ~~that is, in the interval of fractions in [0, 1].~~

1 4 (Original). The method according to Claim 1, wherein the step of determining
2 pipe membership further includes the step of comparing administratively specified
3 values with the value of selected fields in a packet header of the datagrams.

1 5 (Original). The method according to Claim 4, wherein said selected fields of a
2 packet header comprises the Differentiated Services Code Point (DSCP) field in a
3 standard IP packet header.

1 6 (Original). The method according to Claim 4, wherein said selected fields of a
2 packet header comprise the components used for MPLS tunnel designation.

1 7 (Original). The method according to Claim 1, wherein the step of determining
2 whether a datagram constitutes a request for a new connection of a certain value
3 further includes the step of comparing administratively specified values with the
4 value of selected fields in a packet header of the datagram.

1 8 (Original). The method according to Claim 7, wherein the selected fields of a
2 packet header comprise the Transmission Control Protocol (TCP) Synchronization
3 (SYN) field in a standard TCP packet header.

1 9 (Original). The method according Claim 1 wherein the table of values is indexed
2 according to pipe numbers with each corresponding table entry representing the
3 new connection allowance probability corresponding to the associated pipe.

1 10 (Original). The method according to Claim 1, further comprising the step of

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2 responding to actual offered loads of simultaneous connections in each of said
3 pipes relative to guaranteed connection numbers of those pipes by altering the
4 values in the table.

1 11 (Original). The method according to Claim 10, further comprising the step of
2 generating a signal indicative of the existence or nonexistence of excess connection
3 capacity within the interface that affects a pipe flowing through the interface and
4 wherein the altering of the table values is further responsive to the generated signal.

1 12 (Original). The method according to Claim 11, wherein the step of generating
2 a signal includes manipulation of multiple components each of which corresponds
3 to excess connection capacity within an interface, and further wherein the pipes
4 within the interface are grouped according to which shared resources within the
5 interface are currently dedicated to the processing of the grouped pipes.

1 13 (Original). A method that controls the flow of datagrams including the steps of:
2 a) providing, in an interface with CAT, a table identifying pipes and
3 associated new connection allowance probability for each pipe in said table;
4 b) determining the identity of each datagram received in said interface by
5 examining bits within said datagram;
6 c) correlating datagram identity in step (b) with entries in the table; and
7 d) allowing or disallowing a request for a new connection represented in the
8 initial datagram of a new session based upon the value of the new connection
9 allowance probability only if the datagram identified in step (b) matches the identity
10 of a pipe in the table.

1 14 (Original). The method of Claim 13 wherein numerals are used to indicate the
2 identity of pipes and the identity of datagrams.

1 15 (Original). The method of Claim 14 further including the steps of providing a

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2 random number generator; and allowing or disallowing a request for a new
3 connection represented in the initial datagram of a new session based upon the
4 value of the new connection allowance probability and a present value of the
5 random number generator.

1 16 (Original). A method of managing congestion in a communications network
2 comprising the steps of:
3 operatively monitoring, with a device for determining the existence of excess
4 connection capacity, the existence of excess connection capacity within a
5 communications device;
6 generating a signal indicating existence or nonexistence of said excess
7 connection capacity in said communications device; and
8 using the generated signal to acknowledge or disregard requests for new
9 connections in the form of initial packets of new sessions prior to initiating
10 processing on the new connections.

1 17 (Original). Apparatus comprising:
2 a) a memory in which a table of pipe identifiers and associated values for
3 new connection allowance probabilities of transmission are stored;
4 b) a buffer which stores a portion of a frame determined to be an initial frame
5 of a new session;
6 c) a random number generator that periodically outputs random numbers;
7 d) a controller operatively coupled to said memory, said buffer and said
8 random number generator, said controller:
9 parsing information stored in said buffer to determine a pipe
10 membership number for the initial frame,
11 determining from said table a new connection allowance probability
12 value corresponding to the determined pipe membership number,
13 comparing the probability value with a present value of the random
14 number generator, and

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15 causing the initial frame to be acknowledged or disregarded based
16 upon the result of the comparison.

1 18 (Original). Apparatus according to Claim 17, further comprising an interface to
2 an external controller separate from said apparatus, said interface being coupleable
3 through the external controller to at least one other network device and altering the
4 probability values stored in said memory to indicating new connection allowance
5 probability values in response to algorithm constants and determined actual
6 connection values in each identified pipe relative to guaranteed connection values
7 for those pipes.

1 19 (Original). Apparatus according to Claim 17, wherein said controller alters the
2 probability values indicating new connection allowance probability in response to
3 algorithm constants and actual current connection number data for each of said
4 pipes relative to guaranteed data connection values for those pipes.

1 20 (Currently Amended). Apparatus according to one of Claims 18 and or 19,
2 further comprising a management component which initializes the algorithm
3 constants and guaranteed data connection values for pipes.

1 21 (Original). Apparatus according to Claim 19, wherein said controller responds
2 to a signal from a packet forwarding device communicating with said apparatus
3 indicating the existence of excess connection capacity within that forwarding device
4 that affects a pipe flowing through said apparatus by altering the table of values
5 stored in said memory.

1 22 (Original). Apparatus according to Claim 18, wherein said interface passes to
2 the external controller a signal from said apparatus indicating excess connection
3 capacity within said apparatus that affects a pipe flowing through said apparatus.

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1 23 (Original). Apparatus according to one of Claims 21 or 22, wherein said signal
2 includes multiple components each of which corresponds to the existence of excess
3 connection capacity within a different set of processing resources, said pipes
4 flowing through said apparatus being grouped according to which shared resources
5 they direct data to, and wherein the assignment of said values is performed
6 separately for each group of pipes.

1 24 (Currently Amended). Apparatus comprising:
2 an interface between a network such as the Internet and an edge resource
3 ~~such as a server~~; and
4 an excess connection capacity monitoring device operatively coupled to said
5 interface, said excess connection capacity monitoring device monitoring connection
6 numbers in said interface and in said edge resource and generating at least one
7 signal indicating the existence of an excess connection capacity state in said
8 interface and said edge device.

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